Engineering Analysis
HVF, LLC (formerly Shorty's Truck & Railroad Car Parts, Inc.)
301-0062

On February 12, 2009, the Department received Air Permit application forms from HVF, LLC for the proposed modification to existing Air Permit No. 301-0062-0004 for the 500 Hp Diesel Engine and 305 Hp Diesel Generator located in Alexandria, Alabama. Additional information was received on February 23, 2009. The facility would like to limit the hours of operation for both engines to reduce facility wide potential emissions. The engines are used to power an existing metal shredder and separation system with wet suppression (Air Permit No. 301-0062-0003). The process is used to liberate ferrous metals from aluminum breakage and densify light gauge steel.

Facility Description

HVF, LLC (HVF) processes aluminum scrap and is an area source under *40 CFR Part 63, Subpart RRR – National Emissions Standard for Hazardous Air Pollutants for Secondary Aluminum Production.* The facility currently holds the following Air Permits:

Permit Number	Permit Description
301-0062-X001	Sweat Furnace/Wire Incinerator with Afterburner
301-0062-X002	Wire Incinerator with Afterburner
301-0062-X003	Metal Shredder and Separation System
301-0062-X004	500 Hp Diesel Engine and 305 Hp Diesel Generator
301-0036-X005	Metal Shredder and Separation System with Two (2) Cyclones and Water Injection System

Process Description

Miscellaneous scrap metals is loaded onto a conveyor via a front end loader and then transferred into a metal shredder, which is powered by a ***505 hp Caterpillar diesel engine***. After exiting the shredder via a conveyor, material is transferred into an Eddy Current Separator (ECS), which conveys the material to a drum magnet where non-ferrous metal is separated. The ferrous metals is picked up by the magnet and transferred to an onsite ferrous stockpile. The non-ferrous metals proceed under the magnet via a conveyor to an onsite non-ferrous stockpile. The Eddy Current Separator (ECS) is powered by a ***305 hp Caterpiller diesel generator***.

Emissions

Per the application, the expected emissions from this process would be CO, NO_X, PM, SO_2, and VOC. Uncontrolled PTE from the proposed process is based on 8,760 hours of operation per year. A summary of the facility's emission are shown below:

Current facility wide PTE:

PM: 48.9 tons PM/yr
VOC: 11 tons VOC/yr
NO_X: 114 tons NO_X/yr
CO: 32.2 tons CO/yr
SO_2: 7.36 tons SO_2/yr
D/F: $2.56E^{-7}$ tons total D/F/yr

The current PTE from the 505 hp diesel generator and 305 hp diesel generator:

	Uncontrolled Potential Emissions lb/hr (TPY)				
	Pollutants				
Emission Unit	SO_2	NO_X	CO	PM	VOC
505 HP Diesel Engine	1.04 (4.56)	15.7 (68.6)	3.37 (14.7)	1.11 (4.87)	1.25 (5.46)
305 HP Diesel Generator	.625 (2.74)	9.46 (41.4)	2.04 (8.92)	.671 (2.94)	.753 (3.30)
Total Uncontrolled PTE	1.67 **(7.30)**	25.2 **(110)**	5.41 **(23.6)**	1.78 **(7.81)**	2 **(8.76)**

HVF has requested to limit the operation of both the existing 505 hp diesel engine and 305 hp diesel generator to 2,080 hours per 12-month period, on a rolling basis. This would limit facility-wide CO, NO_X, PM, SO_2, and VOC emissions. A summary of the unit's potential emissions after the proposed limits is shown below.

	Potential Emissions lb/hr (TPY)				
	Pollutants				
Emission Unit	SO_2	NO_X	CO	PM	VOC
505 HP Diesel Engine	1.04 (1.08)	15.7 (16.3)	3.37 (3.5)	1.11 (1.15)	1.25 (1.3)
305 HP Diesel Generator	.625 (.65)	9.46 (9.84)	2.04 (2.12)	.671 (.698)	.753 (.783)
Total Uncontrolled PTE	1.67 **(1.73)**	25.2 **(26.1)**	5.41 **(5.62)**	1.78 **(1.85)**	2 **(2.08)**

Facility wide PTE after the proposed limits:

PM: 42.9 tons PM/yr
VOC: 4.32 tons VOC/yr
NO_X: 30.1 tons NO_X/yr
CO: 14.2 tons CO/yr
SO_2: 1.79 tons SO_2/yr
D/F: $2.56E^{-7}$ tons total D/F/yr

Regulations:

Chapter 4 section .01 states that the visible emissions from the 505 hp diesel engine and the 305 hp diesel generator shall not exceed 20% equivalent opacity as determined by a 6-minute average ***(ADEM Admin Code R. 335-3-4-.01(1)(a))***, except during one 6 minute period in any 60-minute period the equivalent opacity may not exceed 40% ***(ADEM Admin Code R. 335-3-4-.01(1)(b))***.

Chapter 4 Section .03, Fuel Burning Equipment, does not apply to these units. The definition of *fuel burning equipment*, as stated in ADEM Admin. Code R..
. 335-3-1-.02(ee), pertains to indirect fired equipment. Therefore, since the proposed unit is direct fired, the PM emissions limits outlined in ADEM Admin. R. Code 335-3-4-.03 does not apply.

Chapter 5 Section .01 states that no person shall cause or permit the operation of a fuel burning installation in a Sulfur Dioxide Category II County in such a manner that sulfur oxides, measured as sulfur dioxide are emitted in excess of 4.0 pounds per million BTU heat input ***(ADEM Admin Code R. 335-3-5-.01(b))***. However, since these units are direct fired, ***Chapter 5 section .01***, is not applicable.

112 (g):

ADEM Admin. Code R. 335-3-14-.06 applies to major sources of HAPs constructed after March 27, 1998. According to these regulations, a major source of HAPs is defined as one that has the potential to emit 10 TPY of any one HAP, or 25 TPY of any combination of HAPs. Air Permit application forms submitted by HVF did not state that the above mentioned thresholds would be exceeded, nor does the Department expect any emission of HAPs in significant quantities. Therefore, no 112(g) review was deemed necessary.

NESHAP:

These units would not be subject to National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ). §63.6585 states that you are subject to this subpart if you own or operate a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. §63.6590(a)(2)(iii) states that a stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006. §63.6590(c) states an affected source that is a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR part 60 Subpart IIII, for compression ignition engines. Therefore, since the stationary engines were constructed before June 12, 2006, these units would not be subject to *New Source Performance Standards (NSPS): Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII)* and no other requirements of *40 CFR Subpart 63 ZZZZ* would apply.

NSPS:

The proposed 500 HP diesel engine and 305 HP diesel generator would not be subject to *New Source Performance Standards (NSPS): Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII). §60.4200(a)(2)(i)* states this

subpart applies to owner or operators of stationary compression ignition internal combustion engines (ICE) that commence construction after July 11, 2005, where the stationary compression ignition ICE are manufactured after April 1, 2006 and are not fire pump engines. Applications submitted by HVF stated that these units were manufactured before April 1, 2006. Therefore, *Subpart IIII* would not apply.

Title V:

To avoid Major Source status for Title V, HVF has requested to limit the operation of both the existing 505 hp diesel engine and 305 hp diesel generator to 2,080 hours per 12-month period, on a rolling basis. This limits facility wide NO_X emissions to 30.1 TPY, which is below the major source threshold of 100 TPY. According to submitted applications, no criteria pollutants are expected to exceed the major source thresholds of a 100 TPY. Therefore, the Major Source Operating Permit (MSOP) regulation would not be applicable.

PSD:

HVF is classified as a secondary metals production facility. To avoid the PSD 100 TPY major source threshold for a criteria pollutant, HVF has requested to limit the operation of both the existing 505 hp diesel engine and 305 hp diesel generator to 2,080 hours per 12-month period, on a rolling basis. This limits facility wide NO_X emissions to 30.1 TPY, which is below the major source threshold of 100 TPY. According to submitted applications, no other criteria pollutants are expected to exceed the PSD major source thresholds. Therefore, a PSD review would not be applicable.

CLASS I AREA:

Emissions from this unit are not expected to impact the closest ***Class I Area***, the Sipsey Wilderness, which is more than 100 km from the plant site.

Recommendations:

Based on above, I recommend that Air Permit No. 301-0062-X004 be modified as indicated below pending receipt of the permitting fees. The recommended provisos are attached.

Permit No.	Permit Description
301-0062-X004	500 Hp Diesel Engine and 305 Hp Diesel Generator

Christopher Osborne

Christopher Osborne
Industrial Minerals Section
Energy Branch
Air Division

June 17, 2009
Date

EMMISIONS CALCULATIONS

Maximum Uncontrolled Criteria Pollutants Potential Emissions for combustion of diesel in the 505 hp diesel engine (factors obtained from AP-42 tables 3.3-1, <600 hp):

505 hp	2.05 E^{-3} lb SO_2	=	**1.04 lb SO_2**	ton	8760 hr	=	**4.53 SO_2 tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

505 hp	.031 lb NO_X	=	**15.7 lb NO_X**	ton	8760 hr	=	**68.6 NO_X tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

505 hp	6.68 E^{-3} lb CO	=	**3.37 lb CO**	ton	8760 hr	=	**14.7 CO tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

505 hp	2.20 E^{-3} lb PM	=	**1.11 lb PM**	ton	8760 hr	=	**4.87 PM tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

505 hp	2.47 E^{-3} lb VOC	=	**1.25 lb VOC**	ton	8760 hr	=	**5.46 VOC tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

Maximum Uncontrolled Criteria Pollutants Potential Emissions for combustion of diesel in the 305 hp diesel engine (factors obtained from AP-42 tables 3.3-1, <600 hp):

305 hp	2.05 E^{-3} lb SO_2	=	**.625 lb SO_2**	ton	8760 hr	=	**2.74 SO_2 tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

305 hp	.031 lb NO_X	=	**9.46 lb NO_X**	ton	8760 hr	=	**41.4 NO_X tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

305 hp	6.68 E^{-3} lb CO	=	**2.04 lb CO**	ton	8760 hr	=	**8.92 CO tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

305 hp	2.20 E^{-3} lb PM	=	**.671 lb PM**	ton	8760 hr	=	**2.94 PM tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

305 hp	2.47 E^{-3} lb VOC	=	**.753 lb VOC**	ton	8760 hr	=	**3.30 VOC tons**
	hp-hr		**hr**	2,000 lb	yr		**yr**

Allowable Emissions based on requested limits for the 505 hp diesel engine:

1.04 lb SO_2	ton	2080 hr	=	**1.08 SO_2 tons**
hr	2,000 lb	yr		**yr**

15.7 lb NO_X	ton	2080 hr	=	**16.3 NO_X tons**
hr	2,000 lb	yr		**yr**

3.37 lb CO	ton	2080 hr	=	**3.5 CO tons**
hr	2,000 lb	yr		**yr**

1.11 lb PM	ton	2080 hr	=	**1.15 PM tons**
hr	2,000 lb	yr		**yr**

1.25 lb VOC	ton	2080 hr	=	**1.3 VOC tons**
hr	2,000 lb	yr		**yr**

Allowable Emissions based on requested limits for the 305 hp diesel engine:

.625 lb SO_2	ton	2080 hr	=	**.65 SO_2 tons**
hr	2,000 lb	yr		**yr**

9.46 lb NO_X	ton	2080 hr	=	**9.84 NO_X tons**
hr	2,000 lb	yr		**yr**

2.04 lb CO	ton	2080 hr	=	**2.12 CO tons**
hr	2,000 lb	yr		**yr**

.671 lb PM	ton	2080 hr	=	**.698 PM tons**
hr	2,000 lb	yr		**yr**

.753 lb VOC	ton	2080 hr	=	**.783 VOC tons**
hr	2,000 lb	yr		**yr**

HVF, LLC
Alexandria, Alabama
(Permit No.: 301-0062-X004)
Provisos

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

5. In case of shutdown of air pollution control equipment for scheduled maintenance for a period greater than two **(2) hours**, the intent to shut down shall be reported to the Air Division at least 24 hours prior to the planned shutdown, **unless accompanied by the immediate shutdown of the emission source.**

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than two **(2) hours**, the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. This process including all air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

8. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

9. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

10. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

11. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

12. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

13. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

14. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

15. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

16. The 505 hp diesel engine shall operate no more than 2,080 hours in any consecutive twelve month period.

17. The 305 hp diesel generator shall operate no more than 2,080 hours in any consecutive twelve month period.

18. Record of monthly and twelve month rolling total documenting the amount of hours shall be kept in a permanent form suitable for inspection and these records must be maintained for a minimum of 5 years following the day of such record.

19. These units shall burn No. 2 fuel oil only. The sulfur content of fuel oil shall not exceed 0.05% by weight.

20. In the event testing is required by ADEM, the sulfur content of the fuel oil shall be determined using procedures found in ASTM D129-64.

21. Records of fuel oil sulfur content must be kept in a form suitable for inspection. Fuel supplier certifications may be used as records for fuel oil sulfur content. These records shall be retained for at least five years following the date of generation and shall be made available upon request.